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# Biotechnology Notes

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**Biotechnology Notes**, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

## INSIDE USDA

### A NEW PERSPECTIVE ON FOOD AND BIOTECHNOLOGY

Most discussions about food and biotechnology seem to focus on either the technical approaches used or on environmental and food safety issues. Now that the technology is becoming commonplace and new food products are nearing commercialization, people are beginning to think more about the social and ethical issues related to food and biotechnology. These topics will be fully discussed June 28-29 at a conference in Research Triangle Park, NC entitled "Symbol, Substance, and Science: The Societal Issues of Food Biotechnology". It is co-sponsored by USDA's Office of Agricultural Biotechnology (OAB) and the North Carolina Biotechnology Center.

Participants will include ethicists, writers, educators, nutritionists, activists, and even a scientist or two. They plan to discuss what society expects from new foods produced through biotechnology and how people may react to them once they come on the market. Most of the sessions will be attended by members of USDA's Agricultural Biotechnology Research Advisory Committee (ABRAC). For more details or to register, please call 919-541-9366.

### ABRAC TO DISCUSS TRANSGENIC ANIMALS; SOCIETAL ISSUES

The next ABRAC meeting, June 29 and 30, immediately follows the "Societal Issues of Food Biotechnology" conference taking place in Research Triangle Park, NC, June 28 and 29. The ABRAC plans to discuss the societal impacts of food and agricultural biotechnology. It will also review a report from a working group meeting on transgenic food animals. Members will also hear highlights of the final report on the U.S.-EC workshop on "Methods of Communicating Biotechnology With the Public" which took place last year in Dublin, Ireland.

New member Rudy Wodzinski joins the ABRAC replacing Lee Bulla of the University of Wyoming. Wodzinski is professor of molecular biology and microbiology at the University

of Central Florida in Orlando. The meeting is open to the public and takes place at the conference and education facility of the North Carolina Biotechnology Center in Research Triangle Park. For more details, please call OAB at 703-235-4419.

## **BIOTECH AMONG THE BONSAI**

USDA's first "Agricultural Biotechnology Day at the U.S. National Arboretum" took place April 28 in Washington, DC. The program was designed to provide information to the diplomatic corps about USDA agricultural biotechnology programs. Special guests included agricultural trade and science officials from about 30 foreign embassies in Europe, South America, Asia, and Africa, as well as senior USDA officials.

Highlights of the day included a presentation by Alan Bennet, professor and plant pathologist at the University of California, Davis, comparing genetic engineering to classical methods of breeding. David MacKenzie, director of USDA's National Biological Impact Assessment Program, discussed plant biotechnology funding. He said USDA research agencies expended about \$170 million for biotech research in fiscal year 1992. A large portion of this investment is matched by State funding, which more than doubles the national public sector investment. He predicted that public investments in plant biotechnology research will continue to rise.

Sally Van Wert from USDA's Animal and Plant Health Inspection Service (APHIS), gave a case history of a transgenic potato. Pat Basu from USDA's Food Safety and Inspection Service discussed the agency's regulation of non-transgenic animals, "no-takes," from transgenic animal experiments. He also talked about activities underway to develop guidelines for the slaughter of transgenic livestock and poultry. L. Val Giddings, APHIS, gave a regulatory update, while Caird E. Rexroad, from USDA's Agricultural Research Service (ARS), talked about animal biotechnology. John Lee, administrator of the Economic Research Service, gave the opening remarks.

The Arboretum is situated on 444 acres that includes one of the largest collections of azaleas in the nation, a 300-year old bonsai, dogwoods, and aquatic plantings. The Arboretum is part of USDA's ARS and is concerned primarily with educational and research activities. It is open to the public every day but Christmas. For more information about the Arboretum, please call 202-475-4815.

## **CALLING ALL AQUATIC ECOLOGISTS**

If your field is aquatic ecology or any related discipline, then you may want to attend a "Workshop on Performance Standards for Research with Genetically Modified Fish and Shellfish", August 18-20, at the University of Minnesota in Minneapolis.

Participants will be asked to develop standards to help researchers assess any ecological risk related to the study of genetically modified fish, crustaceans and mollusks. The

standards will also aid researchers in the design of ecologically safe research protocols. Aquatic research is usually carried out in tanks, raceways, and ponds. Those planning to attend will be mailed a working draft of performance standards prepared by USDA's Working Group on Aquatic Biotechnology and Environmental Safety. For more information call Maryln Cordle, OAB, at 703-235-4419.

## **NEWS AROUND THE NATION (AND THE WORLD)**

### **FDA ASKS PUBLIC FOR MORE INFORMATION**

The Food and Drug Administration (FDA) is asking the public for its views on labeling foods derived from genetically engineered plants. This request follows last year's publication of the agency's policy statement on foods derived from new plant varieties. Now, FDA wants to continue the discussion so that "any needed refinement in the policy can be based on all relevant information and views." Issues other than labeling, such as food allergenicity, will be covered in future public dialogues.

FDA wants the public to write in and provide a definition for the term "genetic engineering" and to clarify under what circumstances it feels labeling is necessary. The agency would also like people to explain why they believe genetically engineered foods differ from foods produced using traditional plant breeding methods. For more details please call James Maryanski, FDA, at 202-205-4359.

### **MARINE BIOTECHNOLOGY: AN EMERGING NEW FRONTIER**

Water-resistant adhesives from mussels, endotoxin tests for drugs using an extract of blood cells from the horseshoe crab, and anti-inflammatory agents from coral -- these are a few of the recent developments in marine biotechnology. Many more such products are on the horizon, according to an April 1 article in *Genetic Engineering News*.

Most of the funding for marine biotechnology comes from the Federal government. About \$42 million was allocated in FY 1992, or 1.2% of the entire Federal biotech budget. Universities and marine science laboratories conduct most of the research.

The article goes on to report obstacles to the pursuit of further research: low levels of funding, a lack of organized and disseminated information, too few highly specialized scientific experts, uncertainty about field testing, and patent policies that vary from country to country.

## **IMPORTANT GENE DISCOVERED IN BARLEY**

David Ho, a plant biologist at Washington University, St. Louis, MO, has found a single gene in barley that controls not one but several traits including height, maturity, drought resistance, and strength when it is genetically engineered into tobacco plants. The gene is referred to as pleiotropic, meaning it causes multiple changes.

According to an article in the March 1 issue of *Genetic Engineering News*, Ho found the gene in barley plants during a stressful time of plant development. His discovery disputes some long-held beliefs that such divergent traits can only be controlled by dozens of different genes and that these multigenic traits would be extremely difficult to program into a plant. The article said his discovery opens up the possibility for growing grains such as wheat and rice that would resist lodging (breaking easily in the wind) and drought. Other possibilities include lawn grasses that would need less watering and mowing and certain trees that would flower earlier.

## **EC COMMITTEE SAYS BST SAFE**

The European Commission (EC) Committee for Veterinary Medicinal Products (CVMP) issued its final report which concluded that Monsanto's and Eli Lilly's BST (bovine somatotropin) products meet the criteria for safety, quality, and efficacy. The Committee recommended a requirement that the products only be dispensed with a veterinary prescription. The CVMP decision on BST does not affect the current moratorium on BST products, which remains in effect until December 31, 1993.

## **EDUCATION, TRAINING AWARDS TOP BIOTECH GRANTS IN NC**

Three colleges, five universities, a county school system, and a science museum have been awarded grants totaling more than \$350,000 from the North Carolina Biotechnology Center to improve their biotechnology teaching and training activities.

## **BIOBALT: HELPING TO FOSTER BIOTECHNOLOGY IN BALTIC STATES**

BIOBALT is an international network whose goal is to integrate the Baltic States (Estonia, Latvia, and Lithuania) into the world biotechnology community, according to an article in the March 1993 issue of *EBIS*. BIOBALT's activities are focused on workshops, symposia, and conferences. Support is provided by UNESCO and the European Federation of Biotechnology. BIOBALT emphasizes scientific collaboration with European countries. Abstracts from the BIOBALT '92 conference are available by writing to Professor Ado Kostner, TTU BIOBALT, Ehitajate tee 5, Tallin EEO 108, Estonia. The book

of abstracts also contains lists of the biotechnology centers and institutions in the three countries.

## IN CASE YOU WEREN'T THERE

- At the May 11 meeting of the Association of Biotechnology Companies (ABC), attorneys Susan Haberman Griffen and William F. Lee discussed what's new in biotechnology patent litigation. Griffen said the biotechnology industry is experiencing the same kind of patent litigation growing pains that other industries went through when they started out. Litigation is expensive, said both Griffen and Lee, and exacts a high emotional cost on all the parties involved. In Lee's opinion, litigation is "generally a bad idea" because it means putting your fate into the hands of a jury or judge. He said juries usually don't understand science issues and it costs a lot to prepare scientists for effective presentation as expert witnesses.
- Gene transfer in food plants and animals and its implications for toxicology was the subject of an address by Daniel Jones, OAB Deputy Director before the Society of Toxicology, May 20 at the National Library of Medicine in Bethesda, MD. He summarized the types of genetic changes that have been accomplished in crop plants so far. He outlined the chemical and biological differences between proteins and industrial chemicals that may affect how their safety is evaluated. He concluded with research recommendations on food composition profiles, development of gene probes for toxicant genes, and improved control of mycotoxin production.

## NEW PUBLICATIONS

- *1993 GEN Guide.* Published by Mary Ann Liebert Inc., New York, NY. Available in book version or on computer disk. For more details call 212-289-2300.
- "Biotechnology Education Inventory." Published by the Association of Biotechnology Companies. 1993. Ordering information may be obtained by writing to ABC, 1666 Connecticut Ave., N.W., Suite 330, Washington, DC 20009-1039; Fax: 202-234-3565.
- "Veterinary Biotechnology Newsletter." Published by the International Office of Epizootics. Paris, France. Volume 2, 1992. Information about ordering a copy may be obtained by sending a fax to 33-1-42-67-09-87 or by writing to OIE, 12 rue de Prony, 75017 Paris, France.

- "Manual of Classification of Agricultural and Forestry Research. Revision V." Prepared by USDA/Cooperative State Research Service. February 1993. To receive a copy, please call 301-504-6272.
- "Global Framework Towards the Sound Development of Biotechnology." Report of a 1992 symposium held in Japan. Published in English and Japanese. To receive a copy, write to Japan Bioindustry Association, 10-5, Shimbashi 5-chome Minato-ku, Tokyo 105, Japan; or call 813-343-33-545; Fax: 813-345-91-440.
- "Biosafety: The Safe Application of Biotechnology in Agriculture and the Environment." Professionals in developing countries may order one free copy from ISNAR, P.O. Box 93375, 2509 AJ The Hague, The Netherlands; or call 31-703-496-100; Fax: 31-703-819-677.
- *The Uses of Life: A History of Biotechnology* by Robert Bud. Cambridge University Press. To be published this month. To order write to Customer Services Dept., Cambridge University Press, the Edinburgh Bldg., Cambridge CB2 2RU, UK.

## UPCOMING MEETINGS

**June 10-11:** "The New Direction: Technology Transfer '93 and Beyond." Washington, DC. Sponsored by *New Technology Week*. For more details call 202-662-9728; Fax: 202-662-9719.

**June 10-11:** "A New Paradigm for Food, the Farm, and the Public: The Impact of Food Biotechnology." Washington, DC. Conference sponsored by the Institute for Science in Society. For details call Michael Gildenberg at 202-331-0613.

**June 14-16:** "Risk Assessment for Environmental Releases of Biotechnology Products." Duluth, MN. Sponsored by EPA, Environment Canada, and USDA. For details call James Harvey at 904-934-9237.

**June 28-29:** "Symbol, Substance, and Science: The Societal Issues of Food Biotechnology." Research Triangle Park, NC. Sponsored by the North Carolina Biotechnology Center and USDA's OAB. Call Jill Nystrom at 919-541-9366 for more details.

**June 29-June 30:** Meeting of USDA's ABRAC. Research Triangle Park, NC. For details call Daniel Jones at 703-235-4419.

**July 13:** Genetically Engineered Crops. Washington, DC. A presentation sponsored by the Association of Biotechnology Companies. To register call 202-234-3330.

**July 25-30:** "Third International Symposium on the Molecular Biology of the Potato." Santa Cruz, CA. Sponsored by USDA, Monsanto Inc., Frito Lay Inc., J.R. Simplot Inc., and Rhone-Poulenc. For more information, please write to William Belknap, USDA-ARS, 800 Buchanan St., Albany, CA 94710.

**July 28-30:** Penn State's 12th Summer Symposium in Molecular Biology, "The Structure/Function Relationships in Proteins and Enzymes." University Park, PA. Call Patricia Phillips at 814-863-3650; Fax: 814-863-1357.

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**Aug. 17-20:** Plant Biotechnology Methods. This workshop introduces the principles, techniques, and applications of plant biotechnology. Sponsored by Penn State University. University Park, PA. For more information call either 1-800-833-5533 or 814-863-3650.

**Aug. 18-20:** Workshop on Performance Standards for Research with Genetically Modified Fish and Shellfish. Duluth, MN. Sponsored by the Minnesota Department of Fisheries and Wildlife, the University of Minnesota, Minnesota Sea Grant, the Minnesota Legislature, and USDA. To register write to Wendlea LeMay at Department of Fisheries and Wildlife, 200 Hodson Hall, University of Minnesota, St. Paul, MN 55108-6124; or call 703-235-4419 for more information.

**Aug. 30-Sept. 2:** First Biomass Conference of the Americas: Energy, Environment, Agriculture, and Industry. Burlington, VT. Sponsored by USDA, the Department of Energy, EPA, and Energy, Mines and Resources of Canada. For more details call 303-231-1158 or 1040; Fax: 303-231-7719.

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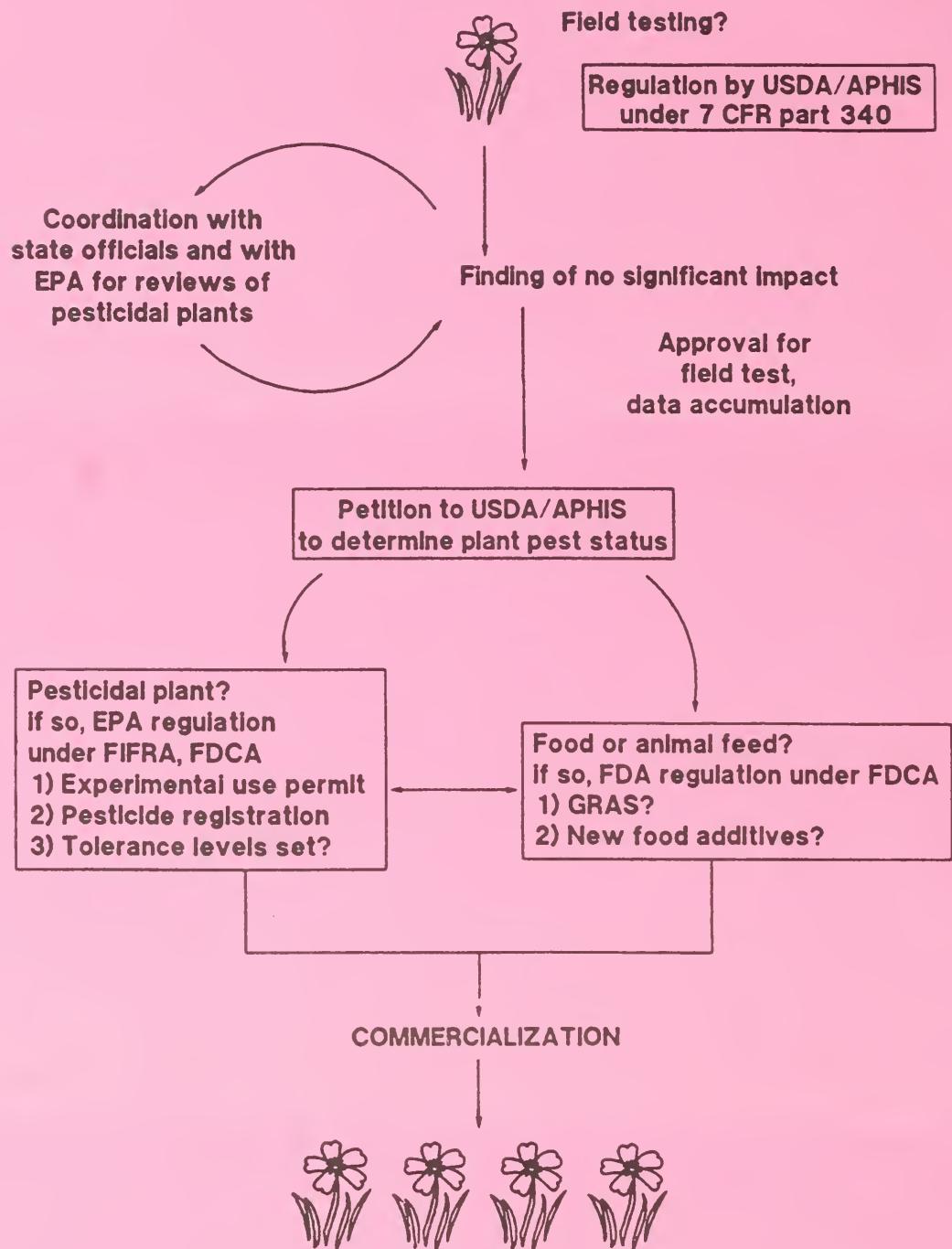
**Sept. 13-17:** Fungal Biotechnology. Ross Priory, Loch Lomond, Scotland. Sponsored by the University of Strathclyde. For more details about this course, write to Miss E. Clements, Fermentation Centre, Dept. of Bioscience and Biotechnology, University of Strathclyde, 204 George St., Glasgow G1 1XW, UK.

**Sept. 13-17:** Issues in Agricultural Bioethics. University of Nottingham, Sutton Bonington Campus, UK. For details about this international conference, call Ben Mepham at 06-02-516303; Fax: 06-02-51602.

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**Biotechnology Notes** is prepared by Marti Asner, USDA/OAB Information Officer. Any comments may be sent to USDA/OAB, Room 1001, Rosslyn Plaza East, 14th and Independence Ave., S.W., Washington, DC 20250-2200. Telephone: 703-235-4419; Fax: 703-235-4429.

## GENETICALLY MODIFIED PLANTS: FROM FIELD TESTING TO COMMERCIALIZATION



(Illustration provided courtesy of USDA's Animal and Plant Health Inspection Service, Biotechnology, Biologics and Environmental Protection Division)